

16388

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application of: BORONAT et al. )  
 )  
Filed: 06 August 2001 ) Group Art Unit: 1638  
 )  
Serial No.: 09/921,992 ) Examiner: Stuart F. Baum  
 )  
Title: Methyl-D-Erythritol Phosphate ) Atty Docket No.: MONS:037US  
Pathway Genes ) REN-00-084-US

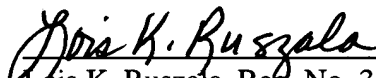
TRANSMITTAL LETTER

Mail Stop Information Disclosure Statement  
Commissioner for Patents  
Post Office Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

For the above-referenced application, enclosed please find an Information Disclosure Statement (submitted in duplicate for accounting purposes); Form PTO-1449 on which the citations are listed; and a Return Post Card. Copies of references which had not been previously cited are provided under separate cover.

Respectfully submitted,

  
Lois K. Ruzala, Reg. No. 39,074  
Thomas E. Omholt, Reg. No. 37,052

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CERTIFICATE OF MAILING

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Sandra Paulov / Lois Ruzala



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**INFORMATION DISCLOSURE STATEMENT**  
**PURSUANT TO 37 C.F.R. §§ 1.97 AND 1.98**

Mail Stop Information Disclosure Statement  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

Pursuant to 37 C.F.R. §§ 1.97 and 1.98, applicants wish to bring the following information to the attention of the Examiner in connection with the subject application. A copy of each citation being mailed is included as is Form PTO-1449, on which the citations are listed.

Pursuant to 37 C.F.R. §1.17(p), please charge the One Hundred Eighty Dollars and 00/100 (\$180.00) fee for filing this document to our Deposit Account No. 50-1100. If any additional fee or credit is due, please charge or credit the amount to our Deposit Account No. 50-1100. This authorization is provided in duplicate for accounting purposes.

Applicants wish to bring to the Examiner's attention other pending U.S. applications directed to tocopherol which have been filed on behalf of Monsanto Technology LLC and/or

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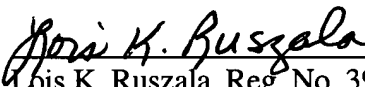
  
Sandra Paulov / Lois Ruszala

Calgene LLC. The published applications are set forth in the "Related Patent Documents" section on the Form PTO-1449.

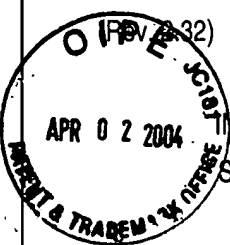
This Disclosure Statement is not intended to substitute for the Examiner's own search. It is believed, however, that this Disclosure Statement will assist the Examiner in the search. The Examiner is expressly requested to review each item cited herein and to make all of the cited items of record in this case as having been considered. The completed Form PTO-1449 is attached for this purpose.

Citation of the items herein is not to be construed as an admission that the information is within the scope and content of the prior art relevant to the present invention, that the information is prior in time to a particular date which may be relevant to the present patent application, that the information is otherwise prior art with respect to the present invention, or that the information cited is material to the claims. In addition, applicants reserve the right to later set forth how the present invention is distinguished over the disclosure of any document or other prior art, including the information cited herein.

Respectfully submitted,

  
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FORM PTO-1449 U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE  INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use several sheets if necessary)	ATTY. DOCKET NO. MONS:037US REN-00-084	SERIAL NO. 09/921,992
	APPLICANT BORONAT et al.	
	FILING DATE August 6, 2001	GROUP 1638

### "RELATED" U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	A	2002/0069426	06 June 02	Boronat et al.			
	A	2002/0108148	08 Aug 02	Boronat et al.			
	A	2003/0148300	07 Aug 03	Valentin et al.			
	A	2003/0150015	07 Aug 03	Norris et al.			
	A	2003/0154513	14 Aug 03	van Eenennaam et al.			
	A	2003/0166205	04 Sep 03	van Eenennaam et al.			
	A	2003/0170833	11 Sep 03	Lassner et al.			
	A	2003/0176675	18 Sep 03	Valentin et al.			
	A	2003/0213017	13 Nov 03	Valentin et al.			
	A	2004/0018602	29 Jan 04	Lassner et al.			
	A	2004/0045051	04 Mar 04	Norris et al.			

### U.S. PATENT DOCUMENTS

	A	4,727,219	23 Feb 88	Brar et al.			
	A	5,304,478	19 Apr 94	Bird et al.			
	A	5,429,939	04 Jul 95	Misawa et al.			
	A	5,432,069	11 Jul 95	Grüninger et al.			
	A	5,545,816	13 Aug 96	Ausich et al.			
	A	5,618,988	08 Apr 97	Hauptmann et al.			
	A	5,684,238	04 Nov 97	Ausich et al.			
	A	5,693,507	02 Dec 97	Daniell et al.			
	A	5,750,865	12 Mar 98	Bird et al.			
	A	5,792,903	11 Aug 98	Hirschberg et al.			
	A	5,876,964	02 Mar 99	Croteau et al.			
	A	5,908,940	01 Jun 99	Lane et al.			
	A	6,281,017	28 Aug 01	Croteau et al.			
	A	6,303,365	16 Oct 01	Martin et al.			
	A	6,541,259	01 Apr 03	Lassner et al.			

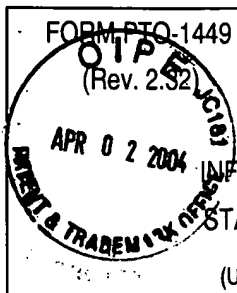
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Examiner

Date Considered

**EXAMINER:** Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

(Form PTO-1449 [6-4])

FORM PTO-1449 U.S. DEPARTMENT OF COMMERCE (Rev. 2-92) PATENT AND TRADEMARK OFFICE  INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use several sheets if necessary)	ATTY. DOCKET NO. MONS:037US REN-00-084	SERIAL NO. 09/921,992
	APPLICANT BORONAT et al.	
	FILING DATE August 6, 2001	GROUP 1638

### FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES NO
	B	2,372,332	02 Nov 00	Canada			Eng Version of WO 00/65036
	B	1 033 405 A2	06 Sep 00	EPO			
	B	0 674 000 A2	27 Sep 95	EPO			
	B	0 531 639 A2 & A3	17 Mar 93	EPO			
	B	0 723 017 A2	24 Jul 96	EPO			
	B	0 763 542 A2	19 Mar 97	EPO			
	B	1 063 297 A1	27 Dec 00	EPO			NO (DE)
	B	2 778 527		FR			YES
	B	560,529	07 Apr 44	Great Britain			
	B	WO 00/01650	13 Jan 00	PCT			
	B	WO 00/08187	17 Feb 00	PCT			
	B	WO 00/10380	02 Mar 00	PCT			
	B	WO 00/11165	02 Mar 00	PCT			
	B	WO 00/14207	16 Mar 00	PCT			
	B	WO 00/22150 A3	20 Apr 00	PCT			
	B	WO 00/28005	18 May 00	PCT			
	B	WO 00/32757 A2 & A3	08 Jun 00	PCT			
	B	WO 00/34448	15 Jun 00	PCT			YES
	B	WO 00/42205 A2 & A3	20 Jul 00	PCT			
	B	WO 00/46346	10 Aug 00	PCT			YES
	B	WO 00/61771	19 Oct 00	PCT			
	B	WO 00/63389	26 Oct 00	PCT			
	B	WO 00/63391	26 Oct 00	PCT			
	B	WO 00/65036 A2 & A3	02 Nov 00	PCT			YES CA 2372332
	B	WO 00/68393	16 Nov 00	PCT			
	B	WO 01/04330	18 Jan 01	PCT			
	B	WO 01/09341	08 Feb 01	PCT			

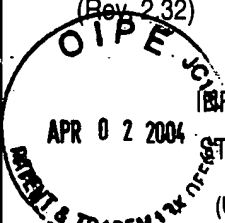
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FORM PTO-1449 U.S. DEPARTMENT OF COMMERCE (Rev. 2-32) PATENT AND TRADEMARK OFFICE  INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use several sheets if necessary)	ATTY. DOCKET NO. MONS:037US REN-00-084	SERIAL NO. 09/921,992
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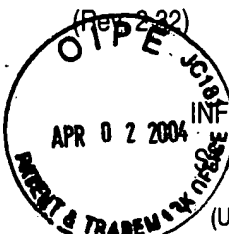
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES NO
	B	WO 01/12827	22 Feb 01	PCT			
	B	WO 01/21650	29 Mar 01	PCT			
	B	WO 01/44276	21 Jun 01	PCT			
	B	WO 01/62781	30 Aug 01	PCT			Partial
	B	WO 01/79472	25 Oct 01	PCT			
	B	WO 01/88169 A2 & A3	22 Nov 01	PCT			
	B	WO 02/00901 A1	03 Jan 02	PCT			YES
	B	WO 02/26933	04 Apr 02	PCT			
	B	WO 02/29022	11 Apr 02	PCT			
	B	WO 02/31173	18 Apr 02	PCT			YES
	B	WO 02/33060	25 Apr 02	PCT			
	B	WO 02/46441	13 Jun 02	PCT			
	B	WO 02/072848	19 Sep 02	PCT			
	B	WO 02/089561	14 Nov 02	PCT			
	B	WO 03/034812	01 May 03	PCT			
	B	WO 03/047547	12 Jun 03	PCT			
	B	WO 91/02059	21 Feb 91	PCT			
	B	WO 91/09128	27 Jun 91	PCT			
	B	WO 91/13078	05 Sep 91	PCT			
	B	WO 93/18158	16 Sep 93	PCT			
	B	WO 94/11516	26 May 94	PCT			
	B	WO 94/12014	09 Jun 94	PCT			
	B	WO 94/18337	18 Aug 94	PCT			
	B	WO 95/08914	06 Apr 95	PCT			
	B	WO 95/18220	06 Jul 95	PCT			Abstract
	B	WO 95/23863	08 Sep 95	PCT			
	B	WO 95/34668	21 Dec 95	PCT			
	B	WO 96/02650	01 Feb 96	PCT			
	B	WO 96/06172	29 Feb 96	PCT			

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FORM PTO-1449 U.S. DEPARTMENT OF COMMERCE (Rev. 2-22) PATENT AND TRADEMARK OFFICE  INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use several sheets if necessary)	ATTY. DOCKET NO. MONS:037US REN-00-084	SERIAL NO. 09/921,992
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EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES NO
	B	WO 96/13149	09 May 96	PCT			
	B	WO 96/13159	09 May 96	PCT			
	B	WO 96/36717 A2 & A3	21 Nov 96	PCT			
	B	WO 96/38567	05 Dec 96	PCT			US equivalent
	B	WO 97/17447	15 May 97	PCT			
	B	WO 97/27285	31 Jul 97	PCT			
	B	WO 97/49816	31 Dec 97	PCT			
	B	WO 98/04685	05 Feb 98	PCT			
	B	WO 98/06862	19 Feb 98	PCT			
	B	WO 98/18910	07 May 98	PCT			
	B	WO 99/04021	28 Jan 99	PCT			
	B	WO 99/04622	04 Feb 99	PCT			
	B	WO 99/06580	11 Feb 99	PCT			
	B	WO 99/07867	18 Feb 99	PCT			
	B	WO 99/11757	11 Mar 99	PCT			YES
	B	WO 99/19460	22 Apr 99	PCT			
	B	WO 99/55889	04 Nov 99	PCT			

### OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

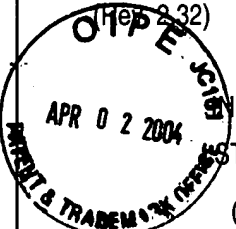
	c	ADDLESEE <i>et al.</i> , "Cloning, sequencing and functional assignment of the chlorophyll biosyntheses gene, <i>chlP</i> , of <i>Synechocystis</i> sp. PCC 6803", FEBS Letters 389 (1996) 126-130
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	c	ARIGONI <i>et al.</i> , "Terpenoid biosynthesis from 1-deoxy-D-xylulose in higher plants by intramolecular skeletal rearrangement", Proc. Natl. Acad. Sci. USA, 94:10600-10605 (1997)
	c	BAYLEY <i>et al.</i> , "Engineering 2,4-D resistance into cotton," Theor Appl Genet, 83:645-649 (1992)
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	c	BEVAN, M., "Binary <i>Agrobacterium</i> vectors for plant transformation", Nucleic Acids Research, 12:8711-8721 (1984)

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c	BEYER <i>et al.</i> , "Phytoene-forming activities in wild-type and transformed rice endosperm," IRRN 21:2-3, p 44-45 (August-December 1996)
c	BORK <i>et al.</i> , "Go hunting in sequence databases but watch out for the traps", TIG 12, 10:425-427 (October 1996)
c	BOUVIER <i>et al.</i> , "Dedicated Roles of Plastid Transketolases during the Early Onset of Isoprenoid Biogenesis in Pepper Fruits", Plant Physiol., 117:1423-1431 (1998)
c	BRAMLEY <i>et al.</i> , "Biochemical characterization of transgenic tomato plants in which carotenoid synthesis has been inhibited through the expression of antisense RNA to pTOM5," The Plant Journal, 2(3), 343-349 (1992)
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c	BROUN <i>et al.</i> , "Catalytic Plasticity of Fatty Acid Modification Enzymes Underlying Chemical Diversity of Plant Lipids," Science, 282:1315-1317 (1998)
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c	COLLAKOVA <i>et al.</i> , "Isolation and Functional Analysis of Homogentisate Phytoltransferase from <i>Synechocystis</i> sp. PCC 6803 and <i>Arabidopsis</i> ", Plant Physiology, 127:1113-1124 (2001)
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c	COLLAKOVA <i>et al.</i> , "Isolation and Characterization of Tocopherol Prenyl Transferase From <i>Synechocystis</i> and <i>Arabidopsis</i> ", Poster Abstract see REN-01-026
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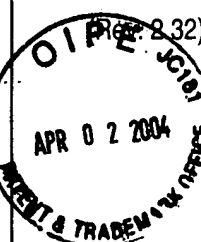
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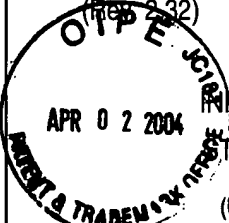
c	d'HARLINGUE <i>et al.</i> , "Plastid Enzymes of Terpenoid Biosynthesis, Purification and Characterization of $\gamma$ -Tocopherol Methyltransferase from <i>Capsicum</i> Chromoplasts," The Journal of Biological Chemistry, Vol. 260, No. 28, pp. 15200-15203, December 5, 1985
c	De LUCA, Vincenzo, "Molecular characterization of secondary metabolic pathways", AgBiotech News and Information, 5(6):225N-229N (1993)
c	DUNCAN <i>et al.</i> , "The overexpression and complete amino acid sequence of <i>Escherichia coli</i> 3-dehydroquinase", Biochem. J., 238:475-483 (1986)
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c	ELLIOTT, Thomas, "A Method for Constructing Single-Copy <i>lac</i> Fusions in <i>Salmonella typhimurium</i> and Its Application to the <i>hemA-prfA</i> Operon", Journal of Bacteriology, 174:245-253 (1992)
c	ERICSON <i>et al.</i> , "Analysis of the promoter region of napin genes from <i>Brassica napus</i> demonstrates binding of nuclear protein <i>in vitro</i> to a conserved sequence motif", Eur. J. Biochem., 197:741-746 (1991)
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c	FELLERMEIER <i>et al.</i> , "Cell-free conversion of 1-deoxy-D-xylulose 5-phosphate and 2-C-methyl-D-erythritol 4-phosphate into $\beta$ -carotene in higher plants and its inhibition by fosmidomycin", Tetrahedron Letters, 40:2743-2746 (1999)
c	FIEDLER <i>et al.</i> , "The formation of homogentisate in the biosynthesis of tocopherol and plastoquinone in spinach chloroplasts", Planta, 155:511-515 (1982)
c	FOURGOUX-NICOL <i>et al.</i> , "Isolation of rapeseed genes expressed early and specifically during development of the male gametophyte", Plant Molecular Biology, 40:857-872 (1999)
c	FRASER <i>et al.</i> , "Enzymic confirmation of reactions involved in routes to astaxanthin formation, elucidated using a direct substrate <i>in vitro</i> assay", Eur. J. Biochem., 252:229-236 (1998)
c	FRASER <i>et al.</i> , "In Vitro Characterization of Astaxanthin Biosynthetic Enzymes", The Journal of Biological Chemistry, 272(10) 6128-6135 (1997)
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	APPLICANT BORONAT et al.	
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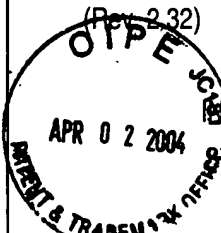
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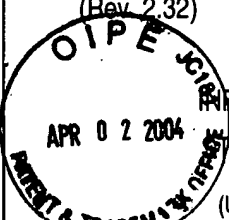
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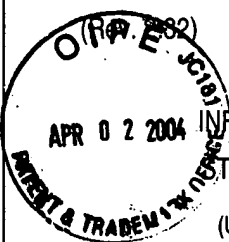
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\* References were previously cited by the Applicant or by the Examiner and thus copies of these references are not being resubmitted with this statement. Copies of the prior PTO-1449 and -892 forms are enclosed herein. See 37 C.F.R. §1.98(d).

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FORM PTO-1449 U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use several sheets if necessary)	ATTY. DOCKET NO. MONS:037US REN-00-084	SERIAL NO. 09/921,992
	APPLICANT BORONAT et al.	
	FILING DATE August 6, 2001	GROUP 1638

c	NAKAMURA <i>et al.</i> , Database EMBL, Accession No.: AB009053, Abstract (Dec 1997) (1998)(2000)
c	NEWMAN <i>et al.</i> , Database EMBL, Accession No.: AA586087, Abstract (Sep 1997)
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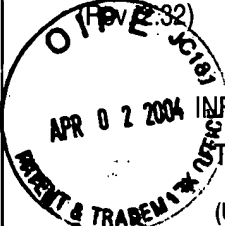
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	APPLICANT BORONAT et al.	
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c	International Search Report, PCT/US00/10367, pp. 1-5 (September 15, 2000)
c	International Search Report, PCT/US00/10368, pp. 1-14 (June 15, 2001)
c	Written Opinion, PCT/US00/10368, pp. 1-6 (May 9, 2002)
c	IPEP, PCT/US00/10368, pp. 1-5 (August 16, 2002)
c	Examination Report, New Zealand Patent Application No. 514600, based on PCT/US/00/10368, pp. 1-2 (April 24, 2003)
c	Communication pursuant to Article 96(2) EPC, EP Application 00922287.8, based on PCT/US00/10368, pp. 1-6 (October 17, 2003)
c	Examiner's Report No. 2, Australia Patent Application No. 42492/00, based on PCT/US00/10368, pp. 1-4 (November 12, 2003)
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c	International Search Report, PCT/US01/24335, pp. 1-8 (March 6, 2003)
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c	slr 1736 cyanobase <a href="http://www.kazusa.com">www.kazusa.com</a>

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